6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[MB Docket Nos. 19-311, 13-249; FCC 19-123; FRS 16313]

All-Digital AM Broadcasting, Revitalization of the AM Radio Service

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: The Federal Communication Commission proposes to amend its rules to allow AM broadcasters to use all-digital transmissions. All-digital AM broadcasting has the potential to provide a more reliable and robust radio signal than analog, as well as auxiliary digital services.

DATES: Comments may be filed on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]** and reply comments may be filed on or before **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Written comments on the Paperwork Reduction Act proposed information collection requirements must be submitted by the public, Office of Management and Budget (OMB), and other interested parties on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: You may submit comments, identified by MB Docket No. 19-311, by any of the following methods:

- Federal Communications Commission's Web Site: http://apps.fcc.gov/ecfs/. Follow the instructions for submitting comments.

- Mail: Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although the Commission continues to experience delays in receiving U.S. Postal Service mail). Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20743. U.S. Postal Service First Class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
- People with Disabilities: Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: FCC504@fcc.gov or phone: 202-418-0530 or TTY: 888-835-5322.

For detailed instructions for submitting comments and additional information on the rulemaking process, *see* the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: James Bradshaw, Deputy Division Chief, Media Bureau, Audio Division (202) 418-2739; Christine Goepp, Attorney Advisor, Media Bureau, Audio Division, (202) 418-7834. For additional information concerning the Paperwork Reduction Act (PRA) information collection requirements contained in this document, contact Cathy Williams at 202-418-2918, or via the Internet at Cathy.Williams@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Proposed Rulemaking (*NPRM*), MB Docket Nos. 19-311, 13-249; FCC 19-123, adopted on November 22, 2019, and released on November 25, 2019. The full text of this document will be available for public inspection and copying via ECFS, and during regular business hours at the FCC Reference Information Center, Portals II, 445 12th Street, SW, Room CY-A257,

Washington, DC 20554. The full text of this document can also be downloaded in Word or Portable Document Format (PDF) at http://www.fcc.gov/ndbedp.

Initial Paperwork Reduction Act of 1995 Analysis

The *NPRM* in document FCC 19-123 seeks comment on proposed rule amendments that may result in modified information collection requirements. If the Commission adopts any modified information collection requirements, the Commission will publish another notice in the *Federal Register* inviting the public to comment on the requirements, as required by the Paperwork Reduction Act, Public Law 104-13; 44 U.S.C. 3501-3520. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, the Commission seeks comment on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees. Public Law 107-198; 44 U.S.C. 3506(c)(4).

Synopsis

1. Currently, the AM broadcasting service suffers from interference and reception issues caused in part by increased emissions from various consumer electronic devices as well as broadcast sources. As a result, many AM stations are constrained to low-fidelity voice formats such as talk radio. Under the current rules, AM and FM stations are permitted to broadcast using either an analog signal or the hybrid analog and digital system licensed by Xperi Corporation under the brand name HD Radio. Although many FM stations have converted to hybrid broadcasting, various technical and other issues have prevented the widespread adoption of hybrid broadcasting by AM stations. Many AM stations believe that all-digital broadcasting represents a unique opportunity for AM broadcasters to improve their ability to reach the listening public and thus may be the single greatest hope for AM revitalization. All-digital AM broadcasting has the potential to improve signal "robustness"—or resistance to interference and

other impairments—as well as the ability to transmit auxiliary information to accompany the main audio programming.

2. To test the effectiveness of all-digital AM broadcasting, the not-for-profit industry organization NAB Labs (now PILOT) conducted a series of AM all-digital performance field tests at nine radio stations, followed by laboratory testing of potential all-digital interference. These tests were summarized in two technical papers presented at the 2015 and 2016 NAB Broadcast Engineering Conference Proceedings and are available for review and comment in MB Docket 19-311. In addition, one AM station, WWFD(AM), Frederick, Maryland, has been operating with an all-digital signal under an experimental license for more than a year. An analysis of the WWFD experiment was presented at the 2019 NAB Broadcast Engineering and Information Technology Conference and is available in MB Docket 19-311.

3. The data on record indicate that all-digital broadcasting has the potential to benefit AM stations and their listeners, particularly regarding audio quality and listenable signal coverage area. However, none of the all-digital test results available to date have been evaluated by the National Radio Systems Committee (NRSC), although all-digital operation is included in NRSC-5-D, an NRSC standard. Moreover, the record suggests that there may be certain areas that warrant further investigation, such as compliance with applicable power limits and the effects of noise on useful all-digital coverage area. Therefore, the Commission seeks comment on what additional data, if any, would be helpful in evaluating the full benefits and potential risks and/or costs of all-digital broadcasting. It invites commenters to place any other relevant data or studies that might be or become available in the record in this proceeding for public review.

4. In the *NPRM*, the Commission proposes to amend the rules to allow AM stations to broadcast an all-digital signal using the HD Radio in-band on-channel (IBOC) mode known as

MA3. In the all-digital MA3 mode, as opposed to the currently authorized hybrid MA1 mode, there is no modulated analog carrier signal (although there is an unmodulated center carrier that serves as a reference point for the correct tuning and operation of the digital sidebands) and the digital carriers are moved toward center frequency with increased power, resulting in a more robust digital signal that is less susceptible to adjacent channel interference. An analog receiver cannot receive an all-digital MA3 signal.

5. *Audio quality*. The Commission tentatively concludes that all-digital operation would improve the audio quality of AM broadcasts and seeks comment on this conclusion. The Commission notes that, compared to hybrid mode, in all-digital mode all the modulated transmitter power is dedicated to the digital carriers, in theory resulting in a significantly more robust reception even in the presence of a stronger analog co-channel signal. The Commission seeks comment on whether the data on record establish that all-digital MA3 operation will provide an improved, consistently high-quality listener experience and relief from interference and other signal impairments. Would all-digital AM operation provide better audio quality than analog or hybrid AM operation? Would all-digital operation provide listenable signals even at relatively low signal strength levels? What is likely to be the listener experience at the outer listenable fringes of the all-digital signal coverage, particularly where a co-channel signal is encountered? Was there a strong co-channel interferer in the WWFD experiment that might have affected the range of the listenable signal? How detrimental to an all-digital signal would interference from power lines, other stations, or other sources be? Are digital receivers better equipped to receive a listenable AM signal than their current analog counterparts? Would all-digital operation provide AM broadcasters a greater range of programming choices, including music formats?

6. *Auxiliary data*. The Commission tentatively concludes that all-digital operation would provide AM broadcasters the opportunity to provide additional services such as stereo audio, song and artist identification, as well as emergency notifications that include text and images (such as missing person photos or emergency evacuation maps). However, it notes that NAB Labs did not report on auxiliary data transmission and that the WWFD secondary and tertiary carriers—which transmit program metadata such as song and artist information—are not always reliable. Therefore, the Commission seeks comment on whether all-digital operation, as a practical matter, would put AM stations on a more level playing field with other broadcast services that can broadcast music formats complete with program metadata. It also seeks comment on how AM broadcasters might use their additional digital capacity in other ways. The Commission asks whether it should provide flexibility for AM broadcasters to provide auxiliary services, while requiring that all digital broadcasters transmit a single stream of free audio programming comparable in audio quality to a standard analog broadcast. How are all-digital broadcasters likely to use such flexibility? How do hybrid AM broadcasters currently use their auxiliary capacity? Are secondary and tertiary digital carriers likely to be primarily used for metadata relating to the primary audio broadcast or are there other possible applications? Specifically, is there the potential in the AM service for future multicast channels?

7. *Signal coverage*. The Commission tentatively concludes, based on the data on record, that an all-digital signal offers the potential of greater useable signal coverage compared to existing AM stations—whether analog or hybrid. NAB Labs field testing demonstrated reliable all-digital daytime reception beyond the subject stations' analog predicted 0.5 mV/m contour and generally out to the 0.1 mV/m contour or beyond, and nighttime reception generally reliable to or beyond the test stations' analog predicted night interference-free (NIF) contours.

WWFD reports similar results: reliable signal coverage to its 0.5 mV/m predicted contour (including critical hours), with reception up to its 0.1 mV/m contour under ideal circumstances, with nighttime reception to WWFD's NIF contour. The Commission seeks comment on these test coverage results and its tentative conclusion. It also seeks comment on whether to monitor whether an individual station's digital coverage corresponds to its previous analog coverage, and if not, whether the Commission should take steps to ensure that the station's digital coverage is not significantly less than its previous analog coverage.

8. *Energy efficiency.* The Commission seeks comment on whether all-digital operation would offer greater energy efficiency and thus utility cost savings for AM broadcasters. How much power would an all-digital AM HD Radio system use compared to analog AM? Would all-digital operation lower power costs for broadcasters compared to analog or hybrid coverage of the same area?

9. *Spectrum efficiency.* The Commission tentatively concludes that all-digital operation would help realize the full potential of digital technology for spectrum efficiency and seeks comment on this conclusion. Within the current AM spectrum allocations and analog emissions mask, all-digital transmission may use 10 or 20 kHz of bandwidth, depending on configuration. The Commission seeks comment on the spectrum efficiency of the all-digital mode of HD Radio transmission and the implications of using the current 20 kHz AM channel assignments in all-digital mode.

10. *Interference.* The Commission seeks comment on whether all-digital operation fits within the existing framework for interference protection or whether there are concerns unique to all-digital broadcasting that should be accounted for in the Commission's rules governing both groundwave and skywave protection of AM stations. A number of commenters

express concern that all-digital operation could cause interference to co- and adjacent-channel analog stations. In this respect, the Commission observes that an all-digital signal has fewer emissions at the outer limits of the occupied bandwidth and therefore should present fewer interference concerns in general than the hybrid mode. It seeks comment on this determination.

11. The Commission tentatively concludes that co-channel interference is more of a concern with all-digital broadcasting than adjacent channel interference. By design, all-digital AM is less likely to cause interference to adjacent channel signals than hybrid operation, due to the relocation of the digital carriers to the center of the channel. The Commission tentatively agrees with NAB Labs that all-digital operation is not likely to create additional interference to adjacent channel signals. It seeks comment on this tentative conclusion and on the likelihood of all-digital adjacent channel interference. Would all-digital operation cause less adjacent-channel interference than hybrid operation?

12. The Commission seeks comment on co-channel interference and asks for comments addressing the co-channel interference studies conducted by NAB Labs. This testing indicated that all-digital interference typically degrades analog signal-to-noise ratios approximately 10.5 dB more than an equal amount of analog interference. However, the NAB Labs field testing of one subject station, WSWW, indicated that impairment to analog co-channel stations was essentially equivalent irrespective of whether WSWW was operating with an analog or an all-digital AM signal. The Commission seeks comment on these lab results and on the potential impact of all-digital signals on co-channel analog stations both in and outside their protected contours.

13. The Commission notes that when it authorized hybrid operations, it accepted a certain amount of interference potential (in that case, mostly adjacent-channel) outside other

stations' protected contours in return for the benefits of digital operation. It asks whether this reasoning apply equally to the potential for co-channel interferences as a result of all-digital operation.

14. The Commission seeks comment on ways to minimize the likelihood of co-channel interference from all-digital stations and to resolve impermissible interference if it occurs. For currently-authorized AM hybrid stations, if interference is anticipated or occurs, the licensee may adjust the power level of the primary digital subcarriers downward by as much as 6 dB. If actual interference occurs within another station's protected service contour and the respective licensees are unable to reach agreement on a voluntary power reduction, the Commission staff may order power reductions for the primary digital carriers or, in extreme cases, termination of IBOC operation. Is this streamlined procedure effective; and, if so, should it govern claims of all-digital interference within the protected contours of the affected station? Should the Commission consider adopting additional protections and/or complaint procedures to allow affected stations to object to all-digital interference even outside their protected contours? How can it best gather information regarding instances of excessive interference if a future power reduction is required? What is the appropriate balance between protecting reception of analog stations outside their protected contours and maximizing all-digital coverage?

15. The Commission seeks comment on the potential of digital-to-digital interference, including whether co-channel interference would be reduced if all AM stations became digital. It also seeks comment on whether the increased power and bandwidth occupancy of the digital carriers might affect adjacent channel digital transmissions. What would be the impact of all-digital stations on hybrid stations? Would all-digital operation be more likely to affect co-channel all-digital stations but not adjacent hybrid stations?

16. Finally, the Commission seeks comment on whether to allow AM all-digital operation at night. It notes that the Commission did not initially approve nighttime hybrid broadcasting due to the increased potential for interference through skywave propagation. NAB Labs did not evaluate potential nighttime interference by all-digital stations; however, it determined that all-digital nighttime reception was reliable to or beyond most test stations' analog predicted NIF contours. In addition, WWFD's experimental license authorizes it to operate at night. The Commission seeks comment on the effects of nighttime skywave on interference among multiple MA3 all-digital signals and between digital and analog co-channel signals. How would all-digital operation affect potential interference caused by skywave propagation? What additional study and testing might be needed to assess AM all-digital performance under nighttime propagation conditions?

17. *Operating rules.* The Commission tentatively concludes that: (1) the allowed operating power (nominal power) limits for AM stations, as set out in 47 CFR 73.21 and in individual station authorizations, should be applied to the unmodulated analog carrier signal for all-digital AM stations; and (2) the emissions mask specified by HD Radio (HD Radio Emissions Mask), which is incorporated by reference into the NRSC-5-D Standard, should determine the allowable power for the digital sidebands. It seeks comment on this tentative conclusion, stating that this approach minimizes the interference potential of all-digital stations by limiting an all-digital station's unmodulated carrier to the same maximum power levels as hybrid and analog stations and ensuring that its digital emissions will not exceed the existing analog emissions mask. The HD Radio Emissions Mask is designed to conform to the analog AM emission mask specified in 47 CFR 73.44, which is integrally related to the Commission's allocations rules, which in turn rest on certain assumptions concerning tradeoffs between coverage and

interference. The Commission asks whether reliance on the HD Radio Emissions Mask for digital sidebands would preserve its existing allocations priorities. Should the Commission adjust all-digital power limits in an effort to replicate existing analog coverage, and if so, what would be the appropriate power levels? If it were to adjust such power limits, how would that impact other stations, including analog and hybrid stations? The Commission explains that protected service contours reflect a balance between providing adequate service areas for each station and maximizing the potential number of station assignments. How should this balance be struck as the AM service transitions to an all-digital environment? Would a change in nominal power limits encourage or discourage digital adoption?

18. The Commission seeks comment on the ability of all-digital stations to comply with the proposed emissions mask requirements. The nine radio stations that NAB Labs tested in all-digital mode had some difficulty meeting the HD Radio Emissions Mask limits. For this reason, NAB Labs suggests that a possible future study regarding emissions compliance could be appropriate. The Commission seeks comment on whether these compliance issues also implicate the test stations' ability to comply with 47 CFR 73.44. In general, are there specific characteristics of all-digital AM operation, particularly using existing AM facilities, that pose challenges to emissions mask compliance, and if so, how should these issues be approached?

19. The Commission seeks comment on the advisability of mandating compliance with the HD Radio Emissions Mask, given that the NRSC has not evaluated it and the NAB Labs testing indicated that all-digital stations might have difficulty complying with it. The Commission asks whether it should wait to approve all-digital operation until the HD Radio Emissions Mask as it relates to MA3 all-digital operation has been evaluated and/or formally endorsed by the NRSC.

20. Finally, the Commission seeks comment on how signal power should best be measured in all-digital broadcasting mode, for the purposes of compliance with 47 CFR 73.44, 73.51, 73.1590, and the HD Radio Emissions Mask. What procedures and equipment would give the most accurate results? Should the Commission specify what types of measurements will be acceptable to demonstrate compliance with the Commission's rules? Due to the peak-to-average ratio of the MA3 mode, which is significantly higher than that of standard amplitude modulation, the power level meter on some transmitters may not read accurately. Do the majority of digital transmitters include measurement tools capable of accurately monitoring compliance with the proposed operating power and emissions mask limitations?

21. The Commission tentatively concludes that it should impose a 1 Hz carrier frequency tolerance standard on AM stations to improve all-digital reception. NAB Labs reports that undesired analog signals that are further off-frequency (e.g., 2 and 5 Hz) were found to have a greater impact on the all-digital signal. In contrast, if desired and undesired carriers are locked or within 1 Hz of one another, the undesired analog signal amplitude can be as great as 6 dB less than the desired all-digital signal before any degradation is detected in the digital audio signal. The proposed standard is a significant improvement over the current 26 dB desired-to-undesired (D/U) interference standards for analog AM. The Commission seeks comment on the proposed benefits and feasibility of a 1 Hz carrier frequency tolerance standard. What would be the burden for existing analog AM stations to comply with the stricter frequency tolerance standard as proposed?

22. The Commission proposes that any station commencing all digital operation must inform the Commission using substantially the same notification procedure currently applicable to hybrid operations (i.e., electronically filing an FCC Form 335-AM within ten days of

commencing all-digital operation). It seeks comment on this proposal. The Commission tentatively concludes that it should likewise be notified when an all-digital station reverts to analog operation, because—unlike a hybrid station simply dropping the digital portion of its signal—conversion from all-digital to analog operation would introduce a new signal that was previously absent. It seeks comment on this tentative conclusion.

23. The Commission tentatively concludes that all-digital AM stations should be subject to the 47 CFR 73.1250 requirement for all free digital stations to participate in the nationwide emergency alert system (EAS). As noted above, all-digital stations are anticipated to cover the same broadcast area with a clearer, more listenable signal—including during emergencies—and will be required to broadcast EAS alerts. Nonetheless, analog-only listeners would only receive EAS alerts from local stations that broadcast an analog signal. The Commission seeks comment on the effect of a voluntary transition to all-digital broadcasting on the EAS system and how best to maximize consumer access to emergency information if local AM stations are allowed to convert to all-digital broadcasting.

24. The Commission seeks comment on the effect of all-digital operations on travelers' information stations (TIS, also called highway advisory radio), which are operated by some state or local governments to disseminate local traffic and weather advisories. TIS facilities are limited to a 10-watt transmitter output power, antenna height no greater than 15 meters, and a coverage radius of 3 km. What would the effect of all-digital operation be on the TIS service?

25. The Commission notes that, in general, radio stations operating in a digital format must comply with the service rules and public interest obligations applicable to analog stations, such as rules relating to station logs, public file, political broadcasting, contests, sponsorship

identification, and so on. It asks whether there any service, programming, operational, or technical rules applicable to digital services generally that should be reconsidered or modified for all-digital operation. AM stations are currently authorized to operate with the hybrid AM IBOC system as tested by the NRSC. Other than the HD Radio Emissions Mask, are there other technical aspects to the NRSC-5-D Standard that should be re-examined for all-digital operation?

26. *Incorporation by reference.* The Commission proposes to adopt the NRSC-5-D standard for all digital stations, hybrid as well as all-digital. In accordance with the Office of the Federal Register requirements for any document that is to be incorporated by reference, it accordingly summarizes and indicates the availability of the NRSC-5-D standard as follows. The NRSC-5-D standard provides technical specifications for IBOC transmission systems. It includes various IBOC transmission system characteristics and transport and service multiplex characteristics, including the HD Radio emissions masks and other technical specifications, which are in turn incorporated by reference. The NRSC-5-D standard is free and available to the public at https://www.nrscstandards.org/standards-and-guidelines/documents/standards/nrsc-5-d/nrsc-5-d.pdf. Adoption of the NRSC-5-D standard would codify the existing *de facto* technical parameters for hybrid and all-digital IBOC operation and thus provide greater operational and business certainty to both broadcasters and equipment manufacturers. The Commission does not anticipate that adoption of the NRSC-5-D standard will change, for practical purposes, the technical guidelines applicable to AM and FM hybrid stations or require stations to change their operations in any way. It seeks comment on this proposal.

27. *Conversion Costs and Receiver Availability.* The Commission tentatively concludes that the costs of conversion to all-digital, while variable by station, do not appear to be prohibitive and emphasizes that such costs will be entirely voluntary. At present, Xperi charges

a one-time licensing fee of around $10,000 for single main channel broadcasting and additional annual fees based on a percentage of revenues for each additional subchannel. The Commission seeks comment on the licensing costs of the HD Radio system and whether this fee presents an obstacle to the adoption of all-digital broadcasting. Are HD Radio license fees a disproportionate burden on smaller broadcasters? The Commission also asks commenters to provide any relevant experience with Xperi in licensing the required technology. It also invites comment on the cost and availability of digital transmission equipment. Has the average cost of acquiring the equipment and licensing to convert to digital operation, in total, gone down in the years since adoption?

28. The Commission observes that the WWFD conversion process was technically challenging and that WWFD continues to experience transmitter issues that prevent full use of the secondary and tertiary digital carriers. Therefore, it asks how likely it is that AM broadcasters, particularly early adopters, will encounter similar technical obstacles. What technical support will be available to converting AM broadcasters and/or their engineering consultants? Is extensive site rehabilitation likely to be necessary for other (particularly older) AM facilities? If so, what level of expertise and expense is likely to be required to duplicate the WWFD experiment? On the other hand, will some legacy AM antenna systems that are unable to pass digital carriers in the MA1 mode be capable of doing so using MA3?

29. Also factored into the cost of conversion borne by any station opting to go all-digital is any loss of existing analog listeners who do not either migrate to an associated translator or acquire an all-digital receiver. In the case of WWFD, this loss was minimized by migrating most listeners to an FM channel, converting the AM station to all-digital, and then promoting the all-digital AM signal on the FM translator. Currently, over half of AM stations

have FM translators. The Commission invites comment on whether the acquisition of FM translators resulting from the AM Revitalization proceeding will allow AM broadcasters greater freedom to experiment with their AM signals as with WWFD. If successful, would a transition to all-digital AM ease the industry pressure to enhance protections for FM translators despite their well-established status as a secondary service? The Commission also seeks comment on whether all-digital translator rebroadcasting or digital synchronous booster stations would further improve the reliability and coverage of MA3 signals.

30. The Commission seeks comment on its conclusion that a voluntary conversion process would allow each AM broadcaster to make the determination whether to assume the associated risks and expenses based on their own assessment of the state of the individual market and the future viability of their analog AM signal. It notes that adoption of the hybrid HD Radio system by AM broadcasters has been relatively lukewarm compared to FM, with fewer than 250 AM stations broadcasting in hybrid mode. This low rate of hybrid adoption is due to multiple factors, including reception issues with the hybrid analog signals, limited signal robustness and reception range caused by the relatively low amplitude of the digital sidebands in relation to the analog carrier, and adjacent channel interference caused by the wider bandwidth of hybrid signals. In addition, the hybrid mode is more likely to require replacement of the entire antenna system than all-digital. The Commission seeks comment on the technical and economic factors that might encourage more widespread adoption of all-digital broadcasting within the AM service.

31. The Commission seeks comment on the overall readiness of AM listeners to transition to digital broadcasting. To determine the overall likelihood of successful AM conversion to all-digital, it seeks additional comment on the degree of market penetration of

digital receivers nationwide, including car and portable receivers, as well as information regarding the quality and cost of such receivers. Are portable (non-vehicle) HD receivers readily available and affordable? How many HD Radio receivers that have been sold in the past are currently still in operation?

32. The Commission seeks comment on the impact that stations converting to all-digital operations could have on listeners with analog-only receivers. What is the estimated size of this audience, and their estimated frequency of use of such receivers? In a market with very few stations, a single station's conversion to all-digital could reduce options for analog-only listeners. The Commission thus seeks comment on whether preserving the long-term economic viability of an AM station and the public benefit of improved service to some listeners would justify the present-day loss of service to other listeners. What steps, if any, could the Commission or broadcast industry take to minimize service disruption and the impact of all-digital conversion on consumers? For example, should it require a station converting to all-digital to notify its listeners that it will be converting to all digital and additional information such as when the transition will take place, what the new service area will be, and what type of receiver will be necessary to continue receiving broadcasts from that station? If so, what should be the timing and frequency of such on-air announcements? Are there any analogies from other broadcast transitions that would be instructive in this regard?

33. The Commission seeks comments on the costs and benefits associated with this proposal, as well as the costs and benefits of any other alternative approaches to addressing the issues raised in this *NPRM*. To the extent possible, commenters should quantify the claimed costs and benefits and provide supporting information. The Commission also asks for comment on the effect of these proposals on AM broadcasters that are small entities and seek comment as

to alternatives that would minimize burdens on such small entities.

Comments and Reply Comments.

34. *Filing Requirements. – Comments and Replies*. Pursuant to 47 CFR 1.415 and 1.419, interested parties may file comments and reply comments on or before the dates indicated in the DATES section of this notice. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://apps.fcc.gov/ecfs/.

- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

  - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20743.

- U.S. Postal Service First Class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

35. *People with Disabilities.* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Government Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

36. *Availability of Documents.* Comments, reply comments, and *ex parte* submissions will be available for public inspection during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12th Street, S.W., CY-A257, Washington, DC 20554. These documents will also be available via ECFS. Documents will be available electronically in ASCII.

PROCEDURAL MATTERS

***Ex Parte* Rules.**

37. This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules, 47 CFR 1.1200 *et seq*. Persons making *ex parte* presentations must file a copy of any written presentation or memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine Period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2)

summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to the Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with 47 CFR 1.1206(b). In proceedings governed by 47 CFR 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppl, searchable .ppl). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

Initial Regulatory Flexibility Analysis.

38. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies proposed in the *Notice of Proposed Rulemaking* (*NPRM*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *NPRM* provided on the first page of the *NPRM*. The Commission will send a copy of this entire *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA). 5 U.S.C. 603(a). In addition, the *NPRM* and the IRFA (or summaries thereof) will be published in the Federal Register.

A. Need for, and Objectives of, the Proposed Rule Changes.

39. The Commission initiates this rulemaking proceeding to obtain comments regarding its proposal to allow AM broadcasters to broadcast an all-digital signal using the HD Radio in-band-on-channel (IBOC) mode known as MA3. Specifically, the Commission seeks comment on the following issues relating to all-digital operation: (1) audio quality and signal coverage; (2) digital carrier power limits and emissions mask compliance; (3) interference potential; (4) spectrum efficiency and auxiliary digital services; (5) conversion costs and procedures; (6) availability of digital receivers and industry demand for digital broadcasting; (7) emergency alert and travelers' information systems; (8) adoption of the NRSC-5-D Standard for digital broadcasting; and (9) a stricter carrier frequency tolerance standard for all AM stations. The new rules proposed are designed to improve the economic viability of many AM stations by providing the option to convert to all-digital broadcasting, including an improved audio signal and the ability to provide other digital information to consumers. This option is seen as a natural outgrowth of the fact that—due to the AM Revitalization proceeding—more than half of AM stations are now able to reach their traditional analog audience by means of an FM translator.

B. Legal Basis.

40. The proposed action is authorized pursuant to sections 1, 4(i), 4(j), 301, 303, 307, 308, 309, and 316 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 301, 303, 307, 308, 309, and 316.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply.

41. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. 5

U.S.C. 603(b)(3). The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." 5 U.S.C. 601(6). In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA. The rules proposed herein will directly affect small television and radio broadcast stations. Below, we provide a description of these small entities, as well as an estimate of the number of such small entities, where feasible.

42. *Radio Stations*. This Economic Census category "comprises establishments primarily engaged in broadcasting aural programs by radio to the public." The SBA has created the following small business size standard for this category: those having $41.5 million or less in annual receipts. Census data for 2012 show that 2,849 firms in this category operated in that year. Of this number, 2,806 firms had annual receipts of less than $25 million, and 43 firms had annual receipts of $25 million or more. Because the Census has no additional classifications that could serve as a basis for determining the number of stations whose receipts exceeded $41.5 million in that year, we conclude that the majority of radio broadcast stations were small entities under the applicable SBA size standard.

43. Apart from the U.S. Census, the Commission has estimated the number of licensed commercial AM radio stations to be 4,406 and the number of commercial FM radio stations to be 6,726 for a total number of 11,132, along with 8,126 FM translator and booster stations. This number is derived from subtracting the total number of noncommercial educational AM stations (204) from the total number of licensed AM stations (4610). As of

September 2019, 4,294 AM stations and 6,739 FM stations had revenues of $41.5 million or less, according to Commission staff review of the BIA Kelsey Inc. Media Access Pro Television Database (BIA). In addition, the Commission has estimated the number of noncommercial educational FM radio stations to be 4,179. NCE stations are non-profit, and therefore considered to be small entities. Therefore, we estimate that the majority of radio broadcast stations are small entities.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements.

44. The *NPRM* proposes to adopt new rules to permit AM stations to broadcast using an all-digital signal. Such operation will be entirely voluntary. Stations converting to all-digital operation would be required to notify the Commission of the commencement of such operation by filing existing Form 335-AM (currently used to report commencement of hybrid operations). In the *NPRM*, the Commission also seeks comment on a complaint procedure for all-digital operation substantially similar to the existing procedure for hybrid stations. Because the type of information to be filed (i.e., information required to be included in notifications) is already familiar to broadcasters, the additional paperwork burdens would be minimal.

E. Steps Taken to Minimize Significant Impact on Small Entities and Significant Alternatives Considered

45. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small

entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

46. In the *NPRM*, the Commission proposes to allow AM stations to broadcast using all-digital transmissions. This proposal offers the flexibility to AM licensees, many of whom are small entities, to assess their own market and resources to decide what form of transmission, analog or digital, would work best for them. If an AM station chooses to continue broadcasting in analog mode, no further reporting or compliance steps are required. Should a licensee opt to broadcast using an all-digital signal, no prior approval by the Commission is needed. Rather, the all-digital station licensee must file a notification within 10 days of the commencement of all-digital operation. This notification uses an existing form and can be submitted online. Therefore, the burden on small entities will be minimal. Alternatives considered by the Bureau include retaining the existing rules, under which no all-digital operation is permitted. The Commission seeks comment on the effect of the proposed rule changes on all affected entities, including the cost and potential technical difficulties of all-digital conversion. The Commission is open to consideration of alternatives to the proposals under consideration, including but not limited to alternatives that will minimize the burden on AM broadcasters, many of whom are small businesses.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rule

47. None.

ORDERING CLAUSES

48. Accordingly, IT IS ORDERED that, pursuant to the authority contained in section 1.407 of the Commission's rules, 47 CFR 1.407, the Petition for Rulemaking filed by Bryan

Broadcasting Corporation IS GRANTED to the extent specified herein.

49. IT IS FURTHER ORDERED that, pursuant to the authority contained in Sections 1, 4(i), 4(j), 301, 303, 307, 308, 309, 316, and 319 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 301, 303, 307, 308, 309, 316, and 319, this Notice of Proposed Rulemaking IS ADOPTED.

50. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects in 47 CFR Part 73

Radio, Reporting and recordkeeping requirements, Incorporation by reference.

Federal Communications Commission.

Katura Jackson,
Federal Register Liaison Officer
Office of the Secretary.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR part 73 as follows:

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 155, 301, 303, 307, 309, 310, 334, 336, 339.

2. In § 73.402, add paragraph (h) to read as follows:

§ 73.402 Definitions.

*** * * * ***

(h) All-digital AM station. An AM station broadcasting an IBOC waveform that consists solely of digitally modulated subcarriers and the unmodulated AM carrier.

3. In § 73.403, revise paragraph (a) to read as follows:

§ 73.403 Digital audio broadcasting service requirements

(a) Broadcast radio stations using IBOC must transmit at least one over-the-air digital audio programming stream at no direct charge to listeners. In addition, a hybrid broadcast radio station must simulcast its analog audio programming on one of its digital audio programming streams. The DAB audio programming stream that is provided pursuant to this paragraph must be at least comparable in sound quality with a standard analog broadcast.

* * * * *

4. Revise § 73.404 to read as follows:

§ 73.404 IBOC DAB operation.

(a) The licensee of an AM or FM station, or the permittee of a new AM or FM station which has commenced program test operation pursuant to § 73.1620, may commence interim hybrid IBOC DAB operation with digital facilities which conform to the technical specifications

specified for hybrid DAB operation in the First Report and Order in MM Docket No. 99–325, as revised in the Media Bureau's subsequent Order in MM Docket No. 99–325. In addition, the licensee of an AM station, or the permittee of a new AM station that has commenced program test authority pursuant to § 73.1620, may commence all-digital IBOC operation with digital facilities that conform to the requirements set out in the First Report and Order in MB Docket No. 19-311 and MB Docket No. 13-249. An AM or FM station may transmit IBOC signals during all hours for which the station is licensed to broadcast.

(b) In situations where interference to other stations is anticipated or actually occurs, hybrid or all-digital AM licensees may, upon notification to the Commission, reduce the power of the primary DAB sidebands by up to 6 dB. Any greater reduction of sideband power requires prior authority from the Commission via the filing of a request for special temporary authority or an informal letter request for modification of license.

(c) Hybrid IBOC AM stations must use the same licensed main or auxiliary antenna to transmit the analog and digital signals.

(d) FM stations may transmit hybrid IBOC signals in combined mode; i.e., using the same antenna for the analog and digital signals; or may employ separate analog and digital antennas. Where separate antennas are used, the digital antenna:

(1) Must be a licensed auxiliary antenna of the station;

(2) Must be located within 3 seconds latitude and longitude from the analog antenna;

(3) Must have a radiation center height above average terrain between 70 and 100 percent of the height above average terrain of the analog antenna.

5. Add § 73.405 to subpart C to read as follows:

§ 73.405 Digital Audio Broadcasting Standard

Unless expressly authorized otherwise, all DAB stations must conform to the technical specifications set out in the NRSC-5-D In-band/on-channel Digital Radio Broadcasting Standard (Apr. 2017) (incorporated by reference, see § 73.8000).

6. Add § 73.406 to subpart C to read as follows:

§ 73.406 Notification

Licensees must provide notification to the Commission in Washington, DC, within 10 days of commencing IBOC digital operation or reverting from all-digital to analog operation.

(a) Every digital notification must include the following information:

(1) Call sign and facility identification number of the station;

(2) Date on which IBOC operation commenced;

(3) Name and telephone number of a technical representative the Commission can call in the event of interference;

(4) A certification that the operation will not cause human exposure to levels of radio frequency radiation in excess of the limits specified in § 1.1310 of this chapter and is therefore categorically excluded from environmental processing pursuant to § 1.1306(b) of this chapter. Any station that cannot certify compliance must submit an environmental assessment ("EA") pursuant to § 1.1311 of this chapter and may not commence IBOC operation until such EA is ruled upon by the Commission.

(b) Every AM digital notification must also include the following information:

(1) Certification that the IBOC DAB facilities conform to the NRSC-5-D standard.

(2) Transmitter power output; if separate analog and digital transmitters are used, the power output for each transmitter;

(3) If applicable, any reduction in an AM station's primary digital carriers;

(c) Every FM digital notification must also include the following information:

(1) Certification that the IBOC DAB facilities conform to the NRSC-5-D standard;

(2) FM digital effective radiated power used and certification that the FM analog effective radiated power remains as authorized;

(3) If applicable, the geographic coordinates, elevation data, and license file number of the auxiliary antenna employed by an FM station as a separate digital antenna;

(4) If applicable, for FM systems employing interleaved antenna bays, a certification that adequate filtering and/or isolation equipment has been installed to prevent spurious emissions in excess of the limits specified in § 73.317;

7. In § 73.1545, revise paragraph (a) to read as follows:

§ 73.1545 Carrier frequency departure tolerances.

(a) AM stations. The departure of the carrier frequency for monophonic transmissions or center frequency for stereophonic transmissions may not exceed ±1 Hz from the assigned frequency.

* * * * *

8. In § 73.8000, revise the last sentence of paragraph (a) and add paragraph (e) to read as follows:

§ 73.8000 Incorporation by reference.

(a) * * *For information on the availability of this material at NARA, email fedreg.legal@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

* * * * *

(e) The National Radio Systems Committee, Principal Contacts: David Layer, dlayer@nab.org, (202) 429-5339 and Mike Bergman, mbergman@ce.org, (703) 907-4366,

www.nrscstandards.org/standards-and-guidelines/ standards-and-guidelines.asp.

(1) NRSC-5-D In-band/on-channel Digital Radio Broadcasting Standard (Apr. 2017).

(2) [Reserved].

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